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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

APPELLANT'S APPEAL BRIEF TRANSMITTAL LETTER

APPELLANT: Heiko Holzheuer DOCKET NO: P99,1523-01
SERIAL NO.: 09/369,360 ART UNIT: 2173
FILED: August 6, 1999 EXAMINER: T. Hailu
Confirmation No. 6693

TITLE: Search and Navigation Device for Hypertext Documents

Mail Stop Appeal Brief-Patents
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

SIR:

Appellant is submitting herewith Appellant's Second Main Brief on Appeal in support of the Notice of Appeal filed May 13, 2005.

This Brief is accompanied by a check in the amount of \$180, which includes the \$500 as required by 37 C.F.R. §41.20(b)(2), less the \$320 appeal brief fee previously paid on August 18, 2003. If necessary, the Commissioner is hereby authorized to charge any additional fees which may be required to account No. 501519.

A duplicate copy of this sheet is enclosed.

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Adjustment date: 07/15/2005 MBERHE
08/22/2003 MBIZUNES 00000063 09369360
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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
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APPELLANT'S SECOND MAIN BRIEF ON APPEAL

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10

Sir:

In accordance with the provisions of 37 C.F.R. §41.37, Appellant submits this Brief in support of the appeal of the above-referenced application in support of the patentability of claims 1-6, 8-14, 16-19 finally rejected in the Office Action, dated November 18, 2004 ("OA"). A copy of the claims on appeal is attached as Appendix A. A Notice of Appeal was filed on May 13, 2005.

REAL PARTY IN INTEREST

The real party in interest in this appeal is the assignee, Siemens Aktiengesellschaft, a German corporation, by virtue of the Assignment recorded October 1, 1999 at reel/frame 010280 / 0139.

RELATED APPEALS AND INTERFERENCES

There are no related appeals and no related interferences known to Appellant, Appellant's Assignee, or Appellant's legal representative.

25

STATUS OF CLAIMS

Claims 1-6, 8-14, and 16-19 are on appeal, and constitute all pending claims of the application. All of these claims were rejected as being anticipated under 35 U.S.C. §102 by Piroulli, U.S. Patent No. 5,895,470.

Claims 7 and 15 are canceled.

STATUS OF AMENDMENTS

Amendment B, filed on October 7, 2002, along with a Request for Continued Examination, served as the basis for rejection in the Final Office Action—therefore, all amendments to the application are of record at the time of
5 this appeal.

SUMMARY OF THE CLAIMED SUBJECT MATTER

In general terms, the present invention is a device and appertaining method for automatically displaying documents related to a known hypertext document that serves as a starting document without the user having to extract
10 search words from the content of the starting document in order to initiate an index or full-text search. The display provides a symbolic representation of the starting document and of the documents connected to it, along with an indication of the degree of similarities of the linked documents. (3/8-15).

A hypertext document containing hypertext links (e.g., an HTML
15 document) is shown on the graphical display, using a “browser” program that interprets HTML format instructions for presentation. The invention takes an address (also known as a “URL”) of the starting document as a parameter, and uses the links contained within the starting document to access other documents referenced by those links. This procedure is then recursively repeated for these
20 other documents. (4/7-15).

An embodiment of the invention provides a display having a tree-like representation by recursing into the referenced documents: the documents may be represented as circles A1-D8, and the links as arrows between the circles (see Figure 1). (4/21-24). The circles A1-D8 may be shaded as a way of
25 indicating a degree of similarity of various documents with the starting documents. (4/24 – 5/1; 7/17 - 8/1). The degree of similarity may be determined by a number of methods, including a word frequency comparison or more complex methodology involving positioning and normalization—the numbers being arranged in a matrix upon which degree of similarity (or “distance”)
30 calculations are carried out. (5/12 – 6/11).

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

The issue on appeal is whether the subject matter of the claims 1-6, 8-14, 16-19 is anticipated under 35 U.S.C. §102(e) by Pirolli, et al. (U.S. Patent No. 5,895, 470).

5

ARGUMENT

ARGUMENT 1—Anticipation of independent claims 1 and 10 by Pirolli, et al. (U.S. Patent no. 5,895,470).

Examiner's Position: Pirolli teaches each and every element of independent claims 1 and 10 and therefore anticipates the invention.

10 In rejecting claims 1 and 10 of the application, the Examiner stated, on p. 3 of the OA:

15 The present invention is directed to navigating and searching document. Similarly, Pirolli et al (5,895,470) discloses a system for categorizing documents in a linked collection of documents.

20 Regarding to claim 1, as in the present claimed invention, Pirolli discloses a computer system comprising a processor, a pointing device and a graphic display (Fig. 14). Pirolli also discloses a software tool or browser (col 6, lines 4-26) which enables a user to traverse through and view documents residing on the Web. Pirolli also identifies and categorizes document according their similarities related to the focus document or starting document (see Abstract, col. 10, lines 17-29); also shown in Fig. 7, an asymptotic pattern activation over nodes or symbols are illustrated or characterized by graph bars 704 contained in the nodes at activated network 703, thus, the characteristic given to said node defines the degree of predicted relevance of web pages to the starting set of focus web pages (col. 10, lines 17-29). Moreover, Pirolli clearly discloses measure of similarity of a staring document to a plurality of other documents using a dot product method (see Fig. 4, col. 7, lines 49-63, and elsewhere).

35

In the section labeled "Response to Arguments", on pp. 5-7 of the OA, the Examiner stated that the arguments presented by the applicant were not persuasive, and elaborated as follows:

Applicant's arguments filed July 23, 2004 have been fully considered but they are not persuasive.

5 Applicant argues that "Pirolli does not anticipate the present invention because it fails to reach the of a similarity measure calculated between a starting document and each other document with document symbols displayed by a computer graphical display being augmented by a marking dependent on the calculated measure of similarity."

10 The Examiner disagrees. As the Examiner understood Pirolli, Pirolli (5,895,470) anticipates the claimed invention. Pirolli discloses measure of similarity as specified in claim 1 (see column 10, lines 17-29, also see col 7, lines 49-63). Also, as illustrated in similarity matrix in Fig. 11 and as described at column 11, lines 16-19), Pirolli shows inter-document similarity of pages between any pages (i, j).

20 Applicant also states "the strength associations of Pirolli are displayed in the links between documents and not within the documents themselves;"

25 The examiner disagrees. Pirolli does not only show how similar the pages are by width of the lines connecting the various pages (Fig. 10), but as illustrated in similarity matrix in Fig. 11 and as described at column 11, lines 16-19), Pirolli also shows inter-document similarity of pages between pages (i, j).

30 Applicant furthermore argues "Pirolli does not focus on a relation to a central document for display purposes."

The Examiner disagrees. Pirolli discloses document *Visualization* for traversing through and view documents residing on the web (see *Visualization*, column 12, lines 48-57).

35 Applicant also argues "Pirolli's display focuses on a between-document relationship and does not utilize the concept of a starting document for display purposes."

40 The Examiner disagrees. Pirolli describes a spreading activation technique is applied to the networks starting at a focus document to predict the documents relevant to the focus document (Abstract, column 10, lines 17-29). Pirolli further describes *Visualization technique* for viewing these documents, such as web pages

(column 10, lines 17-29, column 12, lines 48-57).

5 Applicant also argues that “there is no computer generation and display of what is shown in Fig. 7, and therefore, the document symbols cannot be augmented by a marking dependent on the calculated measure of similarity.” Again, the Examiner disagrees because Pirolli disclose visualization means for viewing these marked documents or web pages (see *Visualization, column 12, lines 48-57*).

10 ***Appellant’s Position: Pirolli fails to each and every element of independent claims 1 and 10 and therefore does not anticipate the invention.***

Claims 1 and 10 comprise certain key elements that must be present in a prior art document in order to anticipate these elements. These elements include, in basic form, 1) a starting document, 2) a similarity measure between
15 the starting document and each other document, 3) a display with a) document symbols representing the documents and b) link symbols representing the link relationship of the documents, and 4) an augmentation for the document symbols based on the similarity measure (that represents the similarity measure). The discussion below is described in terms of claim 1, although parallel arguments
20 can be made with respect to claim 10 as well.

The Examiner has argued the elements required by the claim independently and in a piecemeal manner, but has failed to illustrate how the reference teaches every element of the claim (see MPEP 2131, citing *Verdegaal Bro. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1031, 1053
25 (Fed. Cir. 1987)) and arranged as required by the claim (see MPEP 2131, citing *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1989)).

The Examiner stated (OA, p. 5) that Pirolli discloses measure of similarity as specified in claim 1 (citing to column 10, lines 17-29, also see col 7, lines 49-63), as well as in the similarity matrix in Fig. 11 and as described at column 11,
30 lines 16-19), stating that Pirolli shows inter-document similarity of pages between any pages (i, j).

Appellant does not disagree with the characterization that Pirolli discloses a calculation of similarity between web pages based on this disclosure. However,

Pirolli fails to disclose a graphical display of symbols representing the documents and link symbols representing the link relationship of the documents where the document symbols comprise an augmentation by a marking based on the similarity measure between a starting document and the other documents, as
5 required by elements of the claim.

The Examiner, in addressing a previous argument made by the Appellant that the strength of associations of Pirolli are displayed in the links between documents and not within the documents themselves, stated:

10 Pirolli does not only show how similar the pages are by width of the lines connecting the various pages (Fig. 10), but as illustrated in similarity matrix in Fig. 11 and as described at column 11, lines 16-19), Pirolli also shows inter-document similarity of pages between pages (i, j).

15 Appellant respectfully asserts that a display showing the degree of similarity between pages based on a width of lines shown in Fig. 10 of Pirolli cannot be read on the element of the present invention where the augmentation is based on the document symbols. Claim 1 clearly indicates that the augmentation is made to the document symbols and not the link symbols.

20 This is not an insubstantial difference. The goal of the invention is to provide a simplified display to the user that illustrates the degree of similarity. Therefore, the number of augmentations displayed to a user is equivalent to the number of documents displayed. The display of Pirolli according to Fig. 10 begins to hint at the number of augmentations required by a link-based illustration
25 of degree of similarity, but the number of augmentations rises substantially with the number of pages displayed. For an odd number of nodes n , the number of links required is $n((n-1)/2)$. Thus, the 7-page illustration according to Fig. 10 requires 21 links with augmentations. However, a 31-page illustration would require 465 links with augmentations. Clearly the display mechanism according
30 to Pirolli quickly becomes unwieldy as the number of pages expands beyond just a few.

The Examiner states that Pirolli shows an inter-document similarity of

pages between pages, as illustrated by the similarity matrix in Fig. 11 and as described at column 11, lines 16-19. However, there is no teaching or suggestion in Pirolli that the matrix illustrated in Fig. 11 is presented to the user on a graphical display, or that it is used for anything other than illustrative
5 purposes in the patent itself. Nor would it make sense to present such a display to the user if the goal was to provide a simplified representation to a user, particularly when many web pages are involved.

Furthermore, even if *arguendo* it was established that the matrix of Fig. 11 was actually displayed to the user, such a matrix does not present document
10 symbols that are augmented based on the measure of similarity. The only “document symbols” of this matrix are the designation of pages, numbers 1001 to 1007—these are clearly not augmented in any way by the relationships—rather, the relationships are illustrated with numbers in intersecting grid lines. Thus, this portion of Pirolli does not read on the elements required by claim 1.

15 The Examiner, in addressing a further argument made by the Appellant that Pirolli’s display does not utilize the concept of a starting document for display purposes, stated (p. 6):

20 Pirolli discloses document *Visualization* for traversing through and view documents residing on the web (see *Visualization*, column 12, lines 48-57)...

25 Pirolli describes a spreading activation technique is applied to the networks starting at a focus document to predict the documents relevant to the focus document (Abstract, column 10, lines 17-29). Pirolli further describes *Visualization technique* for viewing these documents, such as web pages (column 10, lines 17-29, column 12, lines 48-57).

As noted previously, the strength associations of Pirolli are displayed in the links between documents and not within the documents themselves; Pirolli
30 does not focus on a relationship to a central document for display purposes.

According to Pirolli, “[representations constructed include] Graph representations of the strength of association of Web pages to one another which are used in the spreading activation...” 5/66 - 6/1. The display of these

representations of strength of association are described in Pirolli, referring to Fig. 10, as being “the widths of the lines connecting the various pages 1001-1007 [which] is an indication of how similar the pages are.” 11/13-15. Thus, Pirolli’s display focuses on a between-document relationship and does not utilize the
5 concept of a starting document for display purposes.

Claim 1 of the present invention requires, in part, that, a similarity measure between a starting document and each other document is calculated and that the document symbols are augmented by a marking dependent on the calculated measure of similarity. An exemplary embodiment of this display can be seen in
10 Fig. 1 in which the degree of relationship of documents to the starting document is represented by the shading used on the document itself.

This is different from Pirolli because the present invention permits the simultaneous display of a structure of links and a structure of similarities belonging to the same originating document within a common representation of
15 both link structure and similarity structure. Pirolli does not provide such a simultaneous display, nor could it be modified to produce such a display as it’s display does not focus on a single starting document.

The Examiner asserted (p. 3) that Fig. 7 of Pirolli illustrates the use of graph bars 704 that shows a predicted relevance of web pages. However, even
20 as acknowledged by the Examiner, Pirolli, at 10/26, Fig. 7 clearly illustrates a starting set of focus web pages and appertaining relationships, and not to a starting document or web page, as required by claim 1.

Furthermore, Appellant previously argued that there is no indication that the illustration shown in Fig. 7 is presented to the user, but rather is simply used
25 to illustrate concepts of activation in the patent description itself.

Fig. 7 of Pirolli is not a computer display, but is an illustrative diagram. Pirolli states, “Spreading activation across the networks is described conceptually with reference to Fig. 7” 10/17-18. There is no computer generation and display of what is shown in Fig. 7, and therefore, the document symbols cannot be
30 augmented by a marking dependent on the calculated measure of similarity.

Appellants had previously stated that the type of output described by Pirolli relates to matrices, however, upon further review of Pirolli, it is clear from 10/55 that the matrices are representations used by the spreading activation algorithm and not the display.

- 5 The Examiner asserts (p. 6) that Pirolli discloses visualization means for viewing the marked documents or web pages (referring to *Visualization*, col. 12, lines 48-57), and presumably infers that this is sufficient to link the illustration of Fig. 7 with what is actually displayed on a screen.

10 The only types of visualizations addressed by Pirolli are described at 12/58-13/13, and simply include broad and generalized statements about possibilities and aims for presenting information. However, these visualizations do not in any way include the augmentation of a document symbol by a marking dependent on the calculated measure of similarity from a starting document.

CONCLUSION

For the above reasons, Appellant respectfully submits that the Examiner is in error in law and in fact in rejecting claims 1-6, 8-14, and 16-19 based on the teachings of the above-discussed reference. Reversal of the rejection of all of those claims is justified, and the same is respectfully requested.

This Brief is accompanied by a check in the amount of \$180, which includes the \$500 as required by 37 C.F.R. §41.20(b)(2), less the \$320 appeal brief fee previously paid on August 18, 2003. If necessary, the Commissioner is hereby authorized to charge any additional fees which may be required to account No. 501519.

Respectfully submitted,

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APPENDIX A CLAIMS INVOLVED IN THE APPEAL

1. (previously presented) A device for navigating documents connected by
5 links, comprising:

a computer which comprises a graphical display, the computer being
configured to operate according to a program that displays
document symbols representing the documents and link symbols
representing the link relationship of the documents;

10 wherein a similarity measure between a starting document and each other
document is calculated, and wherein the document symbols are
augmented by a marking dependent on the calculated measure of
similarity.

15 2. (original) The device of claim 1 further comprising a storage area which
holds characteristic vectors, each extracted from respective said
documents, said characteristic vectors being utilized in calculations
to produce said measure of similarity without referring back to
respective said documents.

20

3. (original) The device of claim 2 wherein said storage area holds a
quantity of said characteristic vectors, wherein said quantity and selection of said

documents is determined both by predefined limiting criteria and by tracing said links within said documents.

4. (original) The device of claim 1 wherein said measure of similarity is
5 determined by a weighted function over the frequencies of words in common in said documents to be compared.

5. (original) The device of claim 1 wherein said symbol configurations represent said degree of similarity.

10

6. (original) The device of claim 5 wherein said symbol configurations utilize color to represent said degree of similarity.

7. (canceled).

15

8. (original) The device of claim 1 wherein said input device is utilized by an individual to select said symbol which determines said starting document.

9. (original) The device of claim 1 wherein said input device is utilized by
20 an individual to generate a selection of words wherein said starting document is

determined by a maximum frequency of said selection of words within said documents.

10. (previously presented) A method of displaying documents connected
5 by links on a computer device, comprising:
- providing a graphical display of the computer device;
 - displaying document symbols, using a computer program, that represent
the documents and link symbols representing the a link relationship
of the documents;
 - 10 calculating a similarity measure between a starting document and each
other document; and
 - augmenting the document symbols by a marking dependent on the
calculated similarity measure.
- 15 11. (original) The method of claim 10 wherein said step of calculating said
measure of similarity is comprised of the steps of:
- generating characteristic vectors from each of said documents;
 - storing said characteristic vectors in a storage area in said computer
device; and
 - 20 utilizing said characteristic vectors in calculating said measure of similarity
without referring back to respective said documents.

12. (original) The method of claim 10 wherein said step of determining said operative group of documents is comprised of the steps of:

tracing said links within said starting document to find and acquire newly
5 found documents; and

iteratively tracing said links within said newly found documents to find and
acquire additional newly found documents according to a
predefined limiting criteria.

10 13. (original) The method of claim 10 wherein said measure of similarity is determined by a weighted function over the frequencies of words in common between said starting document and said remaining documents within said operative group.

15 14. (original) The method of claim 10 wherein said step of displaying respective symbols and symbol characteristics comprises the steps of:
choosing a color to represent said degree of similarity; and
displaying said symbols in the chosen color.

20 15. (canceled).

16. (original) The method of claim 10 wherein said starting document is determined by selecting one of said symbols by an individual with said input device from a previously determined operative group.

5 17. (original) The method of claim 10 wherein said starting document is determined by the steps of:

generating a selection of words by an individual with said input device from
a previously determined operative group; and

10 determining a starting document from a previously determined operative
group based on a calculation of a maximum frequency of said
selection of words within a document within said operative group.

18. (previously presented) The device of claim 5 wherein the relative arrangement of said symbols is modified such that the distance between any said
15 symbol representing any said other document and said symbol representing said starting document is related to said measure of similarity by a known mathematical function.

19. (previously presented) The method of claim 10 wherein said step of
20 displaying respective symbols and symbol characteristics comprises the steps of:
calculating a physical display location at a distance away from said symbol
of said starting document which is related to said measure of

similarity for each said remaining document in said operative group
by a known mathematical function; and
displaying each said remaining document in said operative group at said
calculated physical display location.

**APPENDIX B
EVIDENCE APPENDIX**

There is no additional evidence entered and relied upon for this appeal.

**APPENDIX C
RELATED PROCEEDINGS APPENDIX**

There are no related proceedings associated with this appeal



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Heiko HOLZHEUER

Patent Application entitled: **"SEARCH AND NAVIGATION DEVICE FOR HYPERTEXT DOCUMENTS"**

Our Case No. P99,1523-01 (26965-1354)

Appellant's Appeal Brief Transmittal Letter
Appellant's Second Main Brief On Appeal
Appendix A
Appendix B
\$180.00
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Signature of person mailing application and fee



CH1\ 4297680.1